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EXAMINER
ANYASO, UCHENDU O

ART UNIT	PAPER NUMBER
2675	18

DATE MAILED: 09/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/406,868	KOBAYASHI, KIWAMU	
	Examiner	Art Unit	
	Uchendu O Anyaso	2675	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 July 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-83,85-90 and 92-94* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *80-83,85-90 and 92-94* is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☒ Claim(s) *34 and 47* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. **Claims 1-83, 85-90** and **92-94** are pending in this action.

Claim Rejections - 35 USC ' 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 1, 2, 4, 11, 12, 14, 21-23, 25, 35, 36, 38, 48-54, 56, 64-69, 71** and **79** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Hall et al* (U.S. Patent 5,703,623) in view of *Marsh et al* (U.S. 5,999,167).

Regarding **independent claims 1, 11** and **21**, and for **claims 4** and **14**, *Hall* teaches an invention that relates to the field of position and orientation-sensing devices embedded into a handheld remote pointer or mouse adapted for use as a cursor or object control device (column 4, lines 3-6) for interactive systems which provides X, Y and Z axis signal processed output (column 5, lines 34-48).

Furthermore, *Hall* teaches a designation means having a light emission device for designating a three-dimensional position by teaching a high intensity infrared light emitting diode (4) (hereinafter: LED1) mounted under a card 1' such that LED1 acts as the link between the device and a receiver mounted in a computer (column 6, lines 62-67 through column 7, line 1, figure 2 at 1', 4).

Furthermore, *Hall* teaches a pair of Hall-effect sensors (6) and a pair of piezoelectric sensors (9) which provide the primary yaw, pitch and roll angular detection and bearing sensing capability of the device wherein microprocessor (8) interprets the individual signals from the sensors and the button and relays the control signals to the receiver via infrared LED1 (4) (column 7, lines 3-23, figure 2 at 4, 6, 8, 9).

Furthermore, *Hall* teaches a calculation means by teaching piezoelectric sensors that

when used in conjunction with Hall-Effect sensors, calculates the angular vector and allows translational and rotational orientation information to be accurately discerned (column 9, lines 21-29). However, *Hall* does not teach how the calculation means calculates three-dimensional coordinates of a position based on a positional relationship between a position of the designation means and a position of the coordinate input device. On the other hand, Marsh et al teaches this concept by teaching an invention that provides a cursor control device for use in 3-dimensional space comprising a base unit (infrared receiver) and a remote member wherein the base unit provides an ultrasound source for use by the remote member for determining positional angular orientation of the remote member in 3-dimensional space (see Abstract; column 4, lines 43-50, figures 3 & 5a).

Thus, it would have been obvious to a person of ordinary skill in the art to combine Hall and Marsh's inventions because while Hall teaches *Hall* teaches an invention that relates to the field of position and orientation-sensing devices embedded into a handheld remote pointer or mouse having a light emission device for designating

a three-dimensional position, a pair of Hall-effect sensors (6), and piezoelectric sensors, Marsh teaches how the calculation means calculates three-dimensional coordinates of a position based on a positional relationship between a position of the designation means and a position of the coordinate input device by providing a cursor control device for use in 3-dimensional space comprising a base unit (infrared receiver) and a remote member wherein the base unit provides an ultrasound source for use by the remote member for determining positional angular orientation of the remote member in 3-dimensional space. The motivation for combining these inventions would have been to provide a user with an efficient means for controlling the actions on a device such as a television (column 1, lines 22-24).

Regarding independent **claims 22, 35** and **48,** and for **claims 25** and **38**, *Hall* teaches an invention that relates to the field of position and orientation-sensing devices embedded into a handheld remote pointer or mouse adapted for use as a cursor or object control device (column 4, lines 3-6) for interactive systems which provides X, Y and Z axis signal processed output (column 5, lines 34-48).

Furthermore, *Hall* teaches a designation means having a light emission device for designating a three-dimensional position by teaching a high intensity infrared light emitting diode (4) (hereinafter: LED1) mounted under a card 1' such that LED1 acts as the link between the device and a receiver mounted in a computer (column 6, lines 62-67 through column 7, line 1, figure 2 at 1', 4).

Furthermore, *Hall* teaches a pair of Hall-effect sensors (6) and a pair of piezoelectric sensors (9) which provide the primary yaw, pitch and roll angular detection and bearing sensing capability of the device wherein microprocessor (8) interprets the individual signals from the sensors and the button and relays the control signals to the receiver via infrared LED1 (4) (column 7, lines 3-23, figure 2 at 4, 6, 8, 9).

Also, *Hall* teaches a photoreception device by teaching a high intensity light emitting diode 4 (LED1) which acts as the link between the device and a receiver mounted in the interactive control unit, TV or computer (column 6, lines 62-67 *through* column 7, line 1, figure 2 at 4).

Furthermore, *Hall* teaches a calculation means by teaching piezoelectric sensors that when used in conjunction with Hall-Effect sensors, calculates the angular vector and allows translational and rotational orientation information to be accurately discerned (column 9, lines 21-29).

Furthermore, *Hall* teaches how to synchronize light from the light emitting device and the LED1 by teaching a microprocessor (8) that interprets the individual signals from the sensors and the button and relays the control signals to the receiver via infrared LED1 (4) (column 7, lines 3-23, figure 2 at 4, 6, 8, 9).

However, *Hall* does not teach how the calculation means calculates three-dimensional coordinates of a position based on a positional relationship between a position of the designation means and a position of the coordinate input device. On the other hand, Marsh et al teaches this concept by teaching an invention that provides a cursor control device for use in 3-dimensional space comprising a base unit (infrared

receiver) and a remote member wherein the base unit provides an ultrasound source for use by the remote member for determining positional angular orientation of the remote member in 3-dimensional space (see Abstract; column 4, lines 43-50, figures 3 & 5a).

Thus, it would have been obvious to a person of ordinary skill in the art to combine Hall and Marsh's inventions because while Hall teaches *Hall* teaches an invention that relates to the field of position and orientation-sensing devices embedded into a handheld remote pointer or mouse having a light emission device for designating a three-dimensional position, a pair of Hall-effect sensors (6), and piezoelectric sensors, Marsh teaches how the calculation means calculates three-dimensional coordinates of a position based on a positional relationship between a position of the designation means and a position of the coordinate input device by providing a cursor control device for use in 3-dimensional space comprising a base unit (infrared receiver) and a remote member wherein the base unit provides an ultrasound source for use by the remote member for determining positional angular orientation of the remote member in 3-dimensional space. The motivation for combining these inventions would have been to provide a user with an efficient means for controlling the actions on a device such as a television (column 1, lines 22-24).

Regarding independent **claims 49, 64** and **79,** and for **claims 50-53, 56 and 65-68** and **71**, *Hall* teaches an invention that relates to the field of position and orientation-sensing devices embedded into a handheld remote pointer or mouse adapted for use as

a cursor or object control device (column 4, lines 3-6) for interactive systems which provides X, Y and Z axis signal processed output (column 5, lines 34-48).

Furthermore, *Hall* teaches a designation means having a light emission device for designating a three-dimensional position by teaching a high intensity infrared light emitting diode (4) (hereinafter: LED1) mounted under a card 1' such that LED1 acts as the link between the device and a receiver mounted in a computer (column 6, lines 62-67 through column 7, line 1, figure 2 at 1', 4).

Furthermore, *Hall* teaches a pair of Hall-effect sensors (6) and a pair of piezoelectric sensors (9) which provide the primary yaw, pitch and roll angular detection and bearing sensing capability of the device wherein microprocessor (8) interprets the individual signals from the sensors and the button and relays the control signals to the receiver via infrared LED1 (4) (column 7, lines 3-23, figure 2 at 4, 6, 8, 9).

Also, *Hall* teaches a photoreception device by teaching a high intensity light emitting diode 4 (LED1) which acts as the link between the device and a receiver mounted in the interactive control unit, TV or computer (column 6, lines 62-67 *through* column 7, line 1, figure 2 at 4).

Furthermore, *Hall* teaches a binarization means for binarizing an output signal by teaching an A/D conversion means (85) that enables the input device to achieve position and orientation sensing which contain device output parameters (column 10, lines 58-66).

Furthermore, *Hall* teaches a calculation means by teaching piezoelectric sensors that when used in conjunction with Hall-Effect sensors, calculates the angular vector

and allows translational and rotational orientation information to be accurately discerned (column 9, lines 21-29).

Furthermore, *Hall* teaches how to synchronize light from the light emitting device and the LED1 by teaching a microprocessor (8) that interprets the individual signals from the sensors and the button and relays the control signals to the receiver via infrared LED1 (4) (column 7, lines 3-23, figure 2 at 4, 6, 8, 9).

However, *Hall* does not teach how the calculation means calculates three-dimensional coordinates of a position based on a positional relationship between a position of the designation means and a position of the coordinate input device. On the other hand, Marsh et al teaches this concept by teaching an invention that provides a cursor control device for use in 3-dimensional space comprising a base unit (infrared receiver) and a remote member wherein the base unit provides an ultrasound source for use by the remote member for determining positional angular orientation of the remote member in 3-dimensional space (see Abstract; column 4, lines 43-50, figures 3 & 5a).

Thus, it would have been obvious to a person of ordinary skill in the art to combine Hall and Marsh's inventions because while Hall teaches *Hall* teaches an invention that relates to the field of position and orientation-sensing devices embedded into a handheld remote pointer or mouse having a light emission device for designating a three-dimensional position, a pair of Hall-effect sensors (6), and piezoelectric sensors, Marsh teaches how the calculation means calculates three-dimensional coordinates of a position based on a positional relationship between a position of the designation means and a position of the coordinate input device by providing a cursor control device for use

in 3-dimensional space comprising a base unit (infrared receiver) and a remote member wherein the base unit provides an ultrasound source for use by the remote member for determining positional angular orientation of the remote member in 3-dimensional space. The motivation for combining these inventions would have been to provide a user with an efficient means for controlling the actions on a device such as a television (column 1, lines 22-24).

Regarding **claims 2, 12, 23, 36, 54** and **69,** in further discussion of claims 1, 11, 22, 35, 49 and 64, *Hall* teaches a plurality of line sensors by teaching a pair of Hall-effect sensors (6) and a pair of piezoelectric sensors (9) which provide the primary yaw, pitch and roll angular detection and bearing sensing capability of the device wherein microprocessor (8) interprets the individual signals from the sensors and the button and relays the control signals to the receiver via infrared LED1 (4) (column 7, lines 3-23, figure 2 at 4, 6, 8, 9).

4. Claims 3, 5-10, 13, 15-20, 24, 26-33, 37, 39-46, 55, 57-63, 70 and **72-78** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Hall et al* (U.S. Patent 5,703,623) in view of *Marsh et al* (U.S. 5,999,167), as in claims 1, 11, 22, 35, 49 and 64 above, and further in view of *Isoguchi et al* (U.S. 5,146,353).

Regarding **claims 3, 5-10, 13, 15-20, 24, 26-30, 37 39-43, 55, 57-61, 70** and **72-76**, in further discussion of claims 1, 11, 22, 35, 49 and 64, *Hall* and Marsh do not teach a shutter which is turned on and off. On the other hand, *Isoguchi* teaches a shutter of CCD (35) located in the design of a video camera (1) and a remote control switch box

(14) such that the CCD (35) opens so that a photographic object can be photographed and electric charge can be accumulated at each pixel (column 7, lines 25-36). This enables a recording gate to be tuned on synchronously with so that charge accumulated in the CCD (35) may be processed (column 7, lines 25-36).

Thus, it would have been obvious to a person of ordinary skill in the art to combine *Hall* and *Isoguchi* because while *Hall* teaches an invention that relates to the field of position and orientation-sensing devices embedded into a handheld remote pointer or mouse adapted for use as a cursor or object control device (column 4, lines 3-6), *Isoguchi* teaches a shutter of CCD (35) located in the design of a video camera (1) and a remote control switch box (14) such that a recording gate may be tuned on synchronously with so that charge accumulated in the CCD (35) may be processed (column 7, lines 25-36). The motivation for combining these inventions would have been to provide a means by which an image data may be recorded and played back in an electronic device (column 1, lines 38-46).

Regarding **claims 31, 44, 62 and 77**, in further discussion of claims 26, 39, 57 and 72, *Isoguchi* teaches how CCD (35) opens so that a photographic object can be photographed and electric charge can be accumulated at each pixel (column 7, lines 25-36). This enables a recording gate to be tuned on synchronously with so that charge accumulated in the CCD (35) may be processed (column 7, lines 25-36).

Regarding **claims 32, 33, 45, 46, 63** and **78**, in further discussion of claims 24, 37, 55 and 70, *Hall* teaches in FIG. 7 a functional block diagram illustrating the overall operation of sensing circuit for a remote control device wherein signals from the Hall-Effect 14 and piezoelectric 15 sensors or the pressure-sensitive button switch 16 are transmitted to the onboard processor 17 (column 7, lines 55-60, figure 7).

Allowable Subject Matter

5. Claims **80-83, 85-90** and **92-94** are allowed.

6. **Claims 34** and **47,** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

7. Applicant's Request for Continued Examination containing amendments and arguments filed July 28, 2003 have been fully considered but they are not persuasive with respect to independent claims 1, 11, 21, 22, 35, 48, 49, 64 and 79.

Applicant amended these independent claims and argues that his coordinate input apparatus receives light emitted by a light emission unit of a designation device by a plurality of sensors, calculates and determines an **absolute** three-dimensional position of the light emission unit with regard to the coordinate input apparatus based on a value obtained by the plurality sensors. Applicant further argues that his invention differs from the prior art espoused in Hall, in that, Hall teaches that the sensed

information to be transmitted to the external device is a relative moving amount and direction of the hand-held cursor control device, rather than an absolute moving amount and direction of the handheld cursor device with regard to an external device. Examiner does not consider these arguments persuasive for two reasons:

First, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the issue of the **absolute** three-dimensional position) is not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Also, applicant has clearly espoused what the differences is between the relative moving amount and direction of the handheld cursor control device and the absolute moving amount and direction of the cursor control device.

Second, Marsh et al teaches how his invention provides a cursor control device for use in 3-dimensional space comprising a base unit (infrared receiver) and a remote member wherein the base unit provides an ultrasound source for use by the remote member for determining positional angular orientation of the remote member in 3-dimensional space (see Abstract; column 4, lines 43-50, figures 3 & 5a).

Thus, it would have been obvious to a person of ordinary skill in the art to combine Hall and Marsh's inventions because while Hall teaches *Hall* teaches an invention that relates to the field of position and orientation-sensing devices embedded into a handheld remote pointer or mouse having a light emission device for designating

a three-dimensional position, a pair of Hall-effect sensors (6), and piezoelectric sensors, Marsh teaches how the calculation means calculates three-dimensional coordinates of a position based on a positional relationship between a position of the designation means and a position of the coordinate input device by providing a cursor control device for use in 3-dimensional space comprising a base unit (infrared receiver) and a remote member wherein the base unit provides an ultrasound source for use by the remote member for determining positional angular orientation of the remote member in 3-dimensional space. The motivation for combining these inventions would have been to provide a user with an efficient means for controlling the actions on a device such as a television (column 1, lines 22-24).

To the Examiner's understanding, this determination of the positional angular orientation of the remote member in 3-dimensional space relates to the concept of calculating an absolute 3-dimensional position.

As such, applicant's amendments and arguments are not persuasive.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Uchendu O. Anyaso whose telephone number is (703) 306-5934. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Saras, can be reached at (703) 305-9720.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, 6th Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Uchendu O. Anyaso

09/06/2003

DENNIS-DOON CHOW
PRIMARY EXAMINER